

COMMONWEALTH OF MASSACHUSETTS

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**Department of Housing and Community Development
Division of Community Services**

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FY 2009 HEARTWAP Program Guidance

October 1, 2008-September 30, 2009

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I. GENERAL RULES, REGULATIONS, AND DEFINITIONS APPLICABLE TO HEARTWAP

A. Client Income and Service Eligibility:

1. To receive HEARTWAP assistance, a client must be determined eligible for FY 2009 LIHEAP with income **up to 200% of Federal Poverty** not to exceed 60% of the state median income, based on LIHEAP income documentation requirements.
2. Only primary space heating systems are eligible for HEARTWAP services. Secondary or back-up systems are not eligible for HEARTWAP services.
3. Priority for HEARTWAP services must be given to those clients in an emergency no heat or unsafe heating situation. Non-essential heating system work should be deferred until the end of the heating season or until it is clear that the Subgrantee will have sufficient funds to provide services for all emergencies.
4. Procedure for Tenants in no heat situations:

The tenant must be instructed to first contact their landlord and inform them of the no heat situation. If this contact fails to resolve the no heat situation, then the HEARTWAP subgrantee must make all reasonable efforts to then contact the landlord and inform them of their responsibility under the state sanitary code. During the non-heating season (May 1-September 30), repairs and other code requirement work for tenants with ineligible landlords is prohibited.

5. A client may receive HEARTWAP services even if they received similar assistance in previous years. However, subgrantees should thoroughly evaluate the history of any heating system that requires repairs on a yearly basis.
6. Heating system work for ineligible or vacant units cannot be paid for with HEARTWAP funds. However, ineligible units weatherized by the Weatherization Assistance Program (WAP) under the 50% and 66% rule can receive heating system assistance consistent with WAP guidelines and reported on the WAP Building Weatherization Report (BWR).

B. Service Limitations

Subgrantees must maximize investor owned and municipal utility Demand Side Management and Fuel Neutral fund contributions for all heating system activities whenever possible and appropriate to benefit low-income ratepayers. Supplemental federal, state, or subgrantee funds, donations from charitable organizations or family contributions are strongly encouraged. Utility sponsored High Efficiency Heating System Rebates must be sought when appropriate, although they generally cannot be used in conjunction with contributions from DSM or Fuel Neutral funds. Low-income client contributions should be the last option and to the greatest degree possible should be limited to those instances when the cost of the HEARTWAP work is in excess of the maximum allowable and no other resources are available. WAP funds cannot be used as an in-kind contribution.

1. Owner Assistance:

A maximum of \$2,500 may be spent on the heating system of an eligible owner in any one (1) program year, with the exception of the replacement of a hot water boiler which has a maximum of \$2,750 and a steam boiler which has a maximum expenditure of \$3,000. Additional funds (Up to \$3,625 for forced warm air furnaces, \$4,000 for forced hot water boilers and \$4,375 for steam boilers) are available for heating system replacements in areas served by municipally-owned utilities. See Section III. E. for additional information.

The maximum for payment for asbestos abatement is \$1,200 for an eligible homeowner.

2. Tenant Assistance:

Eligible Tenant/Ineligible Property Owner

A maximum of \$875 may be spent on the heating system of an eligible tenant with an ineligible property owner in any one (1) program year.

If the property owner is ineligible for the HEARTWAP Program, but their tenant is eligible, and it is determined that some form of heating system assistance will be provided to the tenant, and it is also determined that some degree of asbestos abatement is necessary in order to provide the heating system assistance, the property owner and the subgrantee must at least split (50%/50%) the cost of the asbestos abatement which is necessary. The subgrantee should make every effort for the property owner to assume as much of the cost as possible. Under no circumstance may the subgrantee contribute more than 50% of the cost for the asbestos abatement activity, or up to \$600, whichever amount is less.

The maximum contribution that a subgrantee can make toward asbestos abatement for situations where both the tenant and property owner are LIHEA P eligible is \$1,200.

If the tenant's heating system needs to be replaced, and the property owner is willing to contribute the difference between the \$875 and the cost of the system replacement, the subgrantee may contribute to the cost of the heating system.

Eligible Tenant /Eligible Property Owner

If both the Property Owner and the Tenant are eligible, any needed heating system services may be provided to the tenant up to the HEARTWAP maximum expenditures.

Ineligible Tenant/Eligible Property Owner

If the property owner is eligible for the HEARTWAP program, but his or her tenant is ineligible, and that tenant needs heating system service, **no service** may be provided for that tenant.

3. Common Heating:

Definition: A common heating system provides heat to more than one household in a building of two or more units.

Policy: A building of no more than six (6) units, in which one or more of the households are HEARTWAP eligible, may receive heating system assistance in a sum equal to the maximum amount allowable for the specific heating system activity. **For**

Example: A common heating system replacement, for up to a six-family building, cannot exceed \$2,500 for a warm air furnace or space heater, \$2,750 for a hot water boiler or \$3,000 for a steam boiler.

4. Building Eligibility:

Multi-family buildings, of seven (7) or more units, are ineligible for any HEARTWAP assistance.

5. Vacant Units:

Vacant units are ineligible for HEARTWAP assistance.

6. Special Projects:

HEARTWAP assistance, provided in conjunction with the weatherization of Group Homes, Shelters, and Rooming Houses, is limited to those projects in which a non-profit organization owns the dwelling in question. The maximum assistance can never exceed \$2,500 (\$2,750 in the case of a hot water boiler or \$3,000 for a steam boiler). Prior DHCD approval is required in all cases.

7. Free Standing DHW:

Free standing domestic water heaters, including storage tanks, instantaneous tankless and indirect-fired water heaters **are not** eligible for assistance under HEARTWAP. A subgrantee may not become involved in domestic hot water situations when it is not directly related to the operation of the primary space heating system.

8. Oil Tank Replacement:

Oil tanks may be replaced when leaking and irreparable or when in an unsafe condition. The maximum expenditure for eligible owners is \$1,200 inclusive of the oil line, but exclusive of other repairs. The cost of an oil tank replacement is **not** in addition to the cost of a heating system replacement, but is included within the \$2,500, \$2,750 and \$3,000 client assistance maximum.

C. Building Permits:

All contractors must apply and pay for all applicable inspection permits, certificates of inspection, and license fees related to heating system work. The HEARTWAP subgrantee **must** obtain written documentation that all applicable permit applications have been submitted to the appropriate code

enforcement office prior to any payment being made to the contractor. Acceptable proof of documentation is as follows:

- canceled check; (both sides photocopied)
- stamped, signed, or officially designated application to install, by the local governing authority
- receipt from local governing authority
- copy of actual permit; (if it is posted on-site, document it)
- letter from governing authority stating permit has been applied for
- a telephone confirmation of the permit number from the local governing authority. This confirmation must be documented in the client file; (date of phone call, name of contact person, and date of permit application)

All documentation must include the client's name and/or address.

Codes which may be associated with the servicing of primary space heating systems in residential buildings are:

- Electrical
- Fuel Gas
- Plumbing
- Fuel Oil
- Building

D. Proof of Ownership

When the cumulative total HEARTWAP assistance for the entire program year is \$875 or greater, proof of ownership of the dwelling unit is required prior to assistance being rendered. Acceptable forms of documentation of proof of ownership are as follows:

- Deed to the Property
- Mortgage Statement
- Homeowner's Insurance
- Written Verification From Assessor's Office
- Property Tax Bill
- Legal verification of a Life Estate

A copy of the proof of ownership documentation must be maintained in the client's file.

E. Combustion Efficiency Testing and Quality Control Inspections:

Only DHCD trained and certified individuals may perform combustion efficiency tests upon oil and gas heating equipment without possessing a required license. Such individuals are prohibited from making any adjustments to heating equipment.

Subgrantees may develop their own "Heating System Efficiency Report" in lieu of the DHCD developed Attachment C report as long as the subgrantee report includes all the information included on the DHCD report. This information should be shared with WAP staff.

Carbon monoxide (CO) testing and gas leak detection (gas appliances only) of the serviced appliance must be part of all Quality Control visits.

F. Contractor Selection:

Depending upon the situation, either service dealers of record or contractors hired through the procurement process may be used to perform HEARTWAP heating system work. The choice between the use of the two, except when a primary heating system is being replaced, is largely dependent upon the HEARTWAP activity in question and the contractor's compliance (including the dealer of record) with DHCD regulations.

G. Coordination of DHCD Energy Programs :

The purpose of a Memorandum of Understanding/Coordination Plan is to ensure coordination and to ensure that clients receive the full benefit of all services.

HEARTWAP requires that a Memorandum of Understanding and/or Coordination Plan be completed between subgrantees that operate separate DHCD energy programs in the same community. Coordination Plans are not required for agencies that run all three programs. The Coordination Plan is a statement of how the subgrantee will ensure that the WAP Coordinator and/or the HEARTWAP Coordinator and/or the LIHEAP Coordinator will share the activities of one another's programs with the other and how the coordinators will ensure that eligible clients receive the full benefit of all DHCD energy programs.

H. Cost Maximums :

DHCD has established the following cumulative maximum costs for HEARTWAP heating system activities that occur during the course of the HEARTWAP Fiscal Year (October 1, 2008-September 30, 2009):

Clean Tune and Evaluate (CTE)	\$100	\$125 for Oil Heat
Burner Replacement	\$400	
Heating System Repairs	\$600	Municipal Utility Client
Oil Tank Replacement	\$1,200	System Replacement
Owner Warm Air Heating System Replacement	\$2,500	\$3,625
Owner Hot Water System Replacement	\$2,750	\$4,000
Owner Steam System Replacement	\$3,000	\$4,375
Tenant Heating System Replacement (where landlord is ineligible)	\$875	
Allowable Retrofit Measures (without prior DHCD approval)	\$500	
Asbestos Abatement <u>Owner</u>	\$1,200	
<u>Tenant</u>	\$600 or 50%, whichever is less, where the landlord is not LIHEA P eligible.	

NOTE: Limits on each of the costs may be different from what is stated above dependent upon a specific requirement within an activity. Refer to Part III of this memorandum for explicit cost limitations on each activity.

I. Service Dealer of Record:

The service dealer of record is the company that performs primary heating system activities for the HEARTWAP client. HEARTWAP subgrantees must assign all primary heating system activities, except primary heating system replacements, to the client's service dealer of record except when: a) the service dealer of record does not meet DHCD's minimum insurance, license, or contractual requirements, or b) the service dealer of record has an unacceptable history as documented by the subgrantee, or c) the service dealer of record's price for a given measure is excessive based on competitive proposals.

In those instances when the service dealer of record cannot or will not perform the needed heating system activity, the subgrantee must assign work on an equitable or rotational basis to contractors chosen as the result of the HEARTWAP Contractor Procurement process.

Service dealers of record may participate in HEARTWAP at any time as long as they meet the minimum DHCD requirements for participation.

J. Client Education:

Subgrantees are required to provide HEARTWAP clients with information regarding the specific heating system activity they are receiving, including recommended maintenance and product and labor warranties.

K. Emergency:

For the purpose of the HEARTWAP, emergency no heat situations are **ONLY** eligible for assistance between October 1 and April 30.

An emergency situation in terms of heating system activities is defined as follows: no heat can be provided by the primary heating system and the no heat situation could endanger the life, health, or safety of the household members. The subgrantee bears the responsibility of documenting an emergency situation, if it is not readily apparent on the contractor's invoice. Due to procurement regulations and the need to obtain prior DHCD approval, heating system replacements cannot be performed on an emergency basis until all mandated requirements are met.

L. Fuel Type Conversions:

The cost of converting from one primary fuel source to another is not an allowable expense except in those unique situations where DHCD approval might be granted. Prior approval is necessary for all fuel type conversions.

M. Fuel Type Eligibility:

The following fuel types are eligible under the HEARTWAP for heating system assistance: oil, gas (propane, natural), coal, wood, pellets, and electric.

N. License, Insurance, and Contractual Requirements:

The following are the licensing requirements for service technicians working in the HEARTWAP.

- A servicing technician completing any work on oil fired equipment must possess a current Certificate of Competency as an Oil Burner Technician from the Commonwealth of Massachusetts.
- A servicing technician completing any work on gas-fired heating equipment, must be a Gas Utility Technician or possess a current Plumbers or Gasfitters license from the Commonwealth of Massachusetts.
- A servicing technician completing any work on solid fuel heating equipment must possess a current Residential Solid Fuel Burning Appliance Installation License from the Commonwealth of Massachusetts.
- A servicing technician completing work on any electric heating equipment must be an electrician licensed by the Commonwealth of Massachusetts.

Contractor's General Liability

All Contractors and Service Dealers of Record involved with the HEARTWAP shall take out and maintain insurance coverage as listed below with respect to the operations of the Program. This insurance shall be provided at the Contractor's expense and shall be in full force and effect for the full term of the Contract. All policies shall be issued by companies authorized to write that type of insurance under the laws of the Commonwealth of Massachusetts.

Contractors shall provide the following minimum coverage with respect to the operations performed by any employee, subcontractor or supplier:

Bodily Injury and Property Damage	\$1,000,000 each occurrence \$1,000,000 general aggregate
Products and Completed Operations	\$1,000,000 aggregate
Personal and Advertising Injury	\$1,000,000 each occurrence

The policy shall include coverage relating to explosion, collapse, and underground property damage and shall include contractual liability coverage.

Worker's Compensation

Provide the following coverage in accordance with M.G.L. c.149 34A and c. 152 as amended:

Worker's Compensation Coverage A	Provide Statutory Minimum
Worker's Compensation Coverage B	\$500,000 each accident \$500,000 disease per employee \$500,000 disease policy

If a company claims exemption from this requirement the owner must provide a notarized statement detailing the reasons for exemption.

Contractors must provide the subgrantee with valid Certificates of Insurance detailing the coverage listed above.

In addition to the provisions listed above, all Asbestos Abatement contractors shall provide evidence of specific coverage under its Commercial General Liability policy. The policy shall:

1. be written on a “true occurrence” basis without any “sunset” clause;
2. have pollution exclusion amended to add back coverage for all pollution claims;
3. include separate products and completed operations coverage which shall be maintained for two (2) years after Substantial Completion of the project.
4. provide the following limits of insurance:

Bodily Injury and Property Damage	\$1,000,000 each occurrence \$1,000,000 general aggregate
Products and Completed Operations	\$1,000,000 aggregate
Personal and Advertising Injury	\$1,000,000
Fire Damage	\$ 50,000
Medical Expense	\$ 5,000

All Contractors working in the HEARTWAP must sign a Contract for Services with the HEARTWAP Subgrantee. This contract must meet the minimum requirements outlined in the HEARTWAP Procurement Guidance. This requirement includes Dealers of Record.

O. Parameters of A Primary Heating System:

A primary heating system is the space heating system in an eligible dwelling unit that provides for the majority of the space heating needs of the residents. The primary heating system for HEARTWAP is defined as any component of a residential space heating system which:

- Distributes heat (ductwork, baseboard, pipes or radiators, etc.).
- Provides for, or controls combustion (furnace, boiler, burner or safety controls).
- Ventilates products of combustion (flue pipe or chimney, etc.).
- Addresses code compliance measures that relate directly to the heating system (electrical, fire, plumbing or gas).
- Stores or supplies fuel directly to the heating system (tank or fuel line).

P. Property Owner/Tenant Agreements:

Attachment A outlines DHCD's regulations regarding the requirements regarding when the Property Owner/Tenant Agreement is required. When a Property Owner/Tenant Agreement is required, it must be completed in its entirety, including authorized signatures and dates.

If a property owner refuses to sign a Property Owner/Tenant Agreement for those heating system activities where it is required, then the tenant cannot receive HEARTWAP assistance. If an unsafe or inoperable condition exists, the subgrantee's recourse is to inform the local Board of Health.

Q. Quality Control:

Subgrantees are required to perform quality control (Q.C.) inspections on HEARTWAP activities as stated in Attachment A and in Part II of this memorandum. Inspections must be documented, signed, and filed in client folders along with the post combustion efficiency test, a carbon monoxide (CO) test, and gas leak detection results. If there were any problems identified during the first Q.C. visit, the resolution of those problems must be documented in the follow-up Q.C. visit. Inspections must be completed by DHCD trained and certified fulltime agency staff members (no consultants).

No payments may be made to contractors before an acceptable Q.C. has been completed on a burner or system replacement, tank replacement, asbestos abatement, or any CTEs, repairs or retrofit measures with a cumulative cost of \$400 or more.

R. Repairing vs. Replacements:

If the replacement cost of a heating system component is equal to or less expensive than the repair cost, then the replacement rather than the repair is required. (For example, if it costs less to replace an entire oil burner than to replace the motor and transformer, a subgrantee must replace the burner rather than the individual components.) If the cost of repairs to the heating system are determined not to be cost-effective, that is, the aggregate cost of all work necessary to restore the system to acceptable levels of efficiency is in excess of \$600, then the subgrantee should request DHCD permission to replace the heating system prior to authorizing the repair work.

S. Retroactive Service:

There are occasions when a client may arrange to receive their own heating system assistance either before being determined LIHEAP eligible or when a heating system emergency occurs and the subgrantee is not available (weekends, evenings) or cannot arrange for service. Such occasions should be rare and monitored closely.

The subgrantee, when informed that emergency heating system work has already been completed, and when satisfied that the client had no other recourse but to arrange for the service themselves, may seek to determine the income eligibility of the client at the time of the service. If it is determined that the client was eligible at the time of the emergency service, the subgrantee may pay for the activity, provided that the contractor's work meets all DHCD's requirements. Additionally, the contractor must fulfill all HEARTWAP Contractor Procurement requirements.

In those situations where the client has arranged for their own emergency work, the work permit requirement becomes moot, as the work has already happened. However, the subgrantee must seek the property owner's signature on a Property Owner/Tenant Agreement, if applicable, though DHCD

recognizes many property owners may be reluctant to agree to the requirements of the agreement "after the fact".

All subgrantee payments associated with the "Retroactive Service" policy must be made directly to the contractor who provided the service, not to the client. A HEARTWAP or WAP client may never receive a direct payment from a subgrantee for any reason.

In those rare cases where the client has made payment to the contractor, the subgrantee must ensure that the client will be appropriately reimbursed before the subgrantee may authorize payment to the contractor.

At no time will the subgrantee assume an obligation for heating system work, whether it be a tenant or landlord who initiated the work, due to an emergency no heat situation in a rental unit. According to the State Sanitary Code, the landlord is legally obligated to provide and maintain in good operating condition the facilities for heating the dwelling unit. However, if the landlord is HEARTWAP eligible, the eligible tenant is entitled to all allowable service.

T. Service Policy:

Service policies are **not** an allowable HEARTWAP expense. Any heating system related work which is a measure covered by a client's Service Policy Agreement is not an allowable HEARTWAP expenditure.

U. Definition of a Space Heater:

A space heater is defined as a vented primary heating system for a dwelling unit that is situated in the living space and does not have a distribution system. A solid fuel stove (wood, coal, or pellet) or any electrical appliance is not to be considered a space heater. Only space heaters that meet code, or can be brought to code, may receive HEARTWAP assistance.

A portable space heater is defined as follows:

- Not permanently vented to the outside;
- Not fixed to any surface; and
- On loan to clients by agencies for a short period of time during emergency no heat situations.

NOTE: Under no circumstances can unvented combustion space heaters be loaned to HEARTWAP eligible clients.

A portable space heater is an inventory item, and is an allowable purchase through the Non-Expendable Equipment HEARTWAP budget line item. Under no circumstances can a subgrantee charge the cost of a portable space heater to the heating system allocation line item.

The only type of space heater that may be charged to the heating system allocation line item of the HEARTWAP budget are those space heaters that are permanently installed in a client's home.

V. Warranties for Heating Equipment and Installation:

A one (1) year warranty for materials and installation must be provided to the subgrantee in writing by the contractor for all burner or heating system replacements. The warranty for the materials would be the manufacturer's warranty and would be secured by the contractor when they secure the materials. At the time of the quality control inspection performed by the subgrantee, the subgrantee bears the responsibility to pass on to the client a copy of the warranties that the contractor has already made available to the subgrantee. The warranties can be a useful education tool. A subgrantee may pay the labor costs associated with the replacement of a warranted heating system component when the manufacturer does not warranty labor. This payment is conditional upon the fact that neither the installing contractor nor client is responsible for the system component defect. Funds should be obligated only after consultation with a member of the DHCD Technical Field Staff.

W. Work Permits:

A signed work permit must be obtained from the property owner or their agent prior to beginning most heating system activities in HEARTWAP. Attachment A describes those situations requiring a work permit. (See Attachment B for the work permit form.) Without a signed work permit, where required, the subgrantee may not begin any non-emergency work on the heating system.

NOTE: Heating system emergencies must be clearly documented as such. In these situations the necessity of obtaining a signed work permit would be moot. Heating system activities that are documented as an emergency must be substantiated by the contractor's invoice, or a work permit is required.

X. Gas on Gas Stoves:

The Subgrantee may contribute no more than 50%, or \$300, whichever is less, towards the replacement of a gas on gas stove (a.k.a. gas log stove) when that stove is the primary source of heat and is found to be unsafe or inoperable. Such replacement, purchase, and installation may only occur when completed in accordance with the policy for space heater replacements.

Y. Domestic Hot Water Supply:

A subgrantee may not become involved in domestic hot water situations when it is not directly related to the operation of the primary space heating system. Tankless coils can only be replaced when their malfunction directly affects boiler operation, such as the over pressurizing of the boiler.

Z. Work Estimates:

Subgrantees may not reimburse contractors for costs associated with providing job estimates.

AA. Firomatics:

All Firomatic switches must indicate that they are UL approved. Firomatic switches must be upgraded to code whenever a permit is required. Source: Mass. Electrical Code.

BB. Extended Manufacturer's Warranties:

Extended manufacturer's warranties are **not** an allowable HEARTWAP expense.

CC. Contractor Travel Time/Tolls:

The payment of a contractor's travel time and/or travel expenses is **not** an allowable HEARTWAP expense.

DD. Chimney Liners:

The National Fire Prevention Association (NFPA) 54 Revised Edition, as adopted by the Massachusetts Fuel Gas Code, requires that all gas fired heating system installations be vented into chimneys that are properly lined. Subgrantee staff and contractors must ensure compliance with NFPA 54 whenever a permit is required on a gas appliance installation.

Exception: Where permitted by the authority having jurisdiction, existing chimneys shall be permitted to have their use continued when an appliance is replaced by an appliance of similar type, input rating, and efficiency.

EE. Duct Cleaning:

The cleaning of the distribution ducts of a forced warm air heating system is **not** an allowable HEARTWAP expenditure unless there are extreme health and safety concerns and only then with prior DHCD approval.

FF. Carbon Monoxide Detectors:

Carbon Monoxide Detectors are an allowable HEARTWAP measure and expenditure only for the purpose of complying with 248 CMR 5.00 in conjunction with the installation of new sidewall vented appliances (see WAP-IM-2005-023).

II. CLIENT FILE DOCUMENTATION

The following is a listing of forms and information which, if applicable, must be in all HEARTWAP client files.

1. **Certification of Eligibility:**

- a. Copy of certified LIHEAP application or
- b. LIHEAP application number supported by an available computer printout or escrow sheet that verifies the client's eligibility and necessary household characteristics.

2. **Work Permits:** signed by property owner when required.

3. **Tenant/Landlord Agreement:** filled out in its entirety, signed and dated by the landlord or their agent, the tenant, and the subgrantee.

4. Justification of Why the Work was Performed:

- a. WAP referral along with the WAP auditor's combustion efficiency test results.
- b. Justification of no-heat calls and repair work must be stated in writing by the heating contractor and/or HEARTWAP staff person. Justification for all heating system replacements require that the reason for replacement be documented, in writing, by a heating contractor and verified, in writing, by a technically competent HEARTWAP staff person or a second heating contractor.

5. Contractor Invoice:

- a. Itemized list of all parts installed and the work that was performed.
- b. Statement as to why the work was required, if not previously authorized by the subgrantee.
- c. Combustion efficiency test results for all CTEs, burner replacements, system replacements and retrofits. Whenever possible, contractors should perform combustion efficiency testing on both minor and major repairs.

6. Quality Control Form:

- a. Signed and dated by the Quality Control Inspector.
- b. Combustion efficiency test results for all quality control visits are required.
- c. Carbon monoxide test results of flue gases and ambient air where applicable.
- d. Gas leak test results where applicable.
- e. Observations regarding code violations and the overall condition of the heating system.
- f. Notation as to whether the work was acceptable or not, and if not, documentation that the problem was resolved.

7. Proof of Ownership:

Written documentation that confirms ownership when the total program assistance for the program year exceeds \$875.

8. Building Permits:

Verification of all permit requirements.

9. Asbestos Abatement:

All applicable asbestos abatement paperwork.

III. ALLOWABLE HEATING SYSTEM ACTIVITIES AND SPECIFIC RULES AND REGULATIONS

A. To Clean/Tune/Evaluate (CTE) A Primary Heating System

1. Definition:

- a. The CTE of a primary space heating system. (\$100 maximum or \$125 for Oil Heat)
- b. The cleaning of a chimney that ventilates products of combustion from a primary space heating system. (\$150 maximum)

2. Policy and Cost Limitation:

a. Policy on Oil-Fired Heating Systems:

The HEARTWAP policy on CTEs for an oil fired system, is that a CTE is allowable for households of LIHEAP eligible clients if that household has not had a CTE within the current heating season. Note that a complete CTE is required, and not just a tune-up of the system.

Cost Limitation: \$125

b. Policy on Gas-Fired Heating Systems:

The HEARTWAP policy on CTEs for a gas fired system is that a clean/tune/evaluation is allowable once every three (3) heating seasons for households of LIHEAP eligible clients unless specific problems exist which may justify a CTE.

Cost Limitation: \$100

c. Policy on Solid Fuel Heating Systems:

The HEARTWAP policy on cleaning a wood, pellet, or coal stove is that the stove and the chimney should be cleaned annually.

Cost Limitation: \$150

d. Policy on Electric Heating Systems:

The HEARTWAP policy is that electric heating systems do not receive CTEs.

3. General Rules Applicable to CTE Policy:

- a. Prior to undertaking a CTE, the subgrantee is required to obtain a Work Permit on those occasions when the client's service dealer of record is not doing the work.

- b. Post-efficiency test results are required following all CTEs. (See Attachment C for the suggested "Heating System Efficiency Report".)
- c. "Soot sticks" are an **unacceptable** alternative to brushing and vacuuming a furnace or boiler.

NOTE:

The authorization of CTEs, during limited funding periods, is at the discretion of individual subgrantee providers. Extensive subgrantee CTE programs require the prior approval of DHCD.

4. Specific Procedures on CTEs in Relation to Fuel Source:

a. Oil Heat CTE Procedures

- Check for oil leaks
- Check chimney base and flue pipe
- Check fan belts and blowers
- Check operation of all safety controls
- Check pump pressure
- Check barometric damper operation
- Check thermostat operation and location
- Flush and test low water cut-off
- Lubricate all motors
- Inspect and replace all filters as necessary
- Clean or change water glass
- Clean pump strainer and inner housing
- Replace nozzle
- Clean or replace electrodes
- Clean, brush and vacuum boiler and furnace thoroughly
- Adjust fuel/air for proper combustion
- **OPTIMIZE THE FIRING RATE.** Fire the boiler or furnace at the lowest possible rate to provide adequate heat and, if applicable, hot water
- Complete a post-combustion efficiency test and smoke and draft readings
- Complete ambient and flue gas carbon monoxide tests
- Document major code violations
- Provide the Subgrantee with a written evaluation of the client's heating system

b. Gas Heat CTE Procedures

- Check fan belts and blowers
- Check operation of all safety controls
- Check barometric damper operation
- Check thermostat operation and location
- Check thermocouple
- Check chimney base and flue pipe
- Adjust pilot and burner
- Inspect and replace all filters as necessary
- Lubricate all motors
- Flush and test low water cut-off
- Clean or change water glass
- Clean burner, combustion chamber and heat exchange surfaces

- Complete a post-combustion efficiency test
- Complete ambient and flue gas carbon monoxide tests
- Document major code violations
- Check for gas leaks
- Provide the subgrantee with written evaluation of the system

c. Solid Fuel Heat Cleaning and Service Procedures:

- Check to be certain that the stove and chimney were thoroughly cleaned.
- Check to ensure that the stove's installation meets the manufacturer's instructions.
- Check to ensure that the stove and chimney and their installation comply with the Massachusetts State Building Code.

5. Quality Control on a CTE

- a. Ten Percent (10%) of all CTEs must receive a quality control inspection. Those that receive a quality control inspection must be monitored against the post-efficiency test results submitted by the contractor. All Quality Control visits must include a CO test.
- b. See Attachment D for "Oil-Fired Heating System Quality Control Procedure".
- c. See Attachment E for "Gas-Fired Heating System Quality Control Procedure".

B. To Repair A Primary Heating System

1. Definition

- a. The replacement or repair of an existing primary heating system component or an individual part of a burner must be considered a heating system repair.
- b. Measures which are defined as "Heating System Retrofits" and "Burner Replacements" are not to be considered as repairs.

2. Policy and Cost Limitation

- a. Policy: The HEARTWAP policy on primary heating system repairs is that repairs are an allowable expense when an unsafe or inoperable condition exists; an emergency situation need not be present, though it can be.

b. Restrictions on Tenant Services Where the Landlord is Ineligible:

During the heating season (October 1 - April 30), subgrantees may do that work necessary to restart systems in an emergency after following the procedure outlined in Section I.A.4. Subgrantees may authorize such emergency repairs up to a maximum of \$600. (Other repairs and code requirements that are not necessary to restart the system are to be considered an unallowable expense).

During the non-heating season (May 1 - September 30), repairs and other code requirement work for tenants with ineligible landlords is prohibited.

c. Cost Limitation:

The cumulative cost of heating system repairs may not exceed \$600 during the grant period.

3. Rules and Regulations Applicable to Heating System Repair Policy:

a. Non-Emergency Repairs under \$300:

Prior to beginning any repair in this cost category, the subgrantee is required to obtain a Work Permit.

b. Non-Emergency Repairs \$300 and over up to \$600:

Prior to beginning any repair in this cost category for an eligible owner-occupied dwelling, the subgrantee is required to obtain a Work Permit.

Prior to beginning any repair in this cost category on the property that an owner rents to eligible tenants, the subgrantee is required to obtain a Work Permit, and should make every effort to secure a Standardized Property Owner/Tenant Agreement.

c. All Emergency Repairs

Prior to beginning any emergency repair on either owner-occupied or on a property where the owner rents to eligible tenants, the subgrantee is required to obtain a Work Permit.

d. Exception to Policy:

If the subgrantee is unable to obtain a Work Permit due to the emergency nature of the situation, the subgrantee may rely on the DHCD policy on Retroactive Service. DHCD recognizes that in emergency situations, it is not always easy or possible to secure the signature of a property owner when the emergency is in a tenant's dwelling unit. When these situations arise, the subgrantee must encourage the tenant to arrange for the heating system repair.

e. Eligible Repair Items

The following primary heating system components are eligible for repair as part of the HEARTWAP:

NOTE: This list does not include every possible heating system component:

- | | |
|---------------------|---------------------|
| • Air Filter | • Heat Pump |
| • Aquastat | • High Tension Lead |
| • Limit Control | • Barometric Damper |
| • Low Water Cut-Off | • Blast Tube |
| • Nozzle | • Blower |

- Oil Burner
- Burner Motor
- Cad Cell
- Chimney
- Circulator
- Coal Stove
- Combustion Chamber
- Compressor (Heat Pump)
- Condenser Coil (Heat Pump)
- Damper
- Electric Junction
- Electric Service
- Electric Wiring
- Space Heating Pipes*
- Flue Pipe
- Fuel Filter
- Fuel Line
- Furnace
- Gas Burner
- Heat Exchanger
- End Cone
- Boiler
- Orifice
- Pressure Control
- Pressure Regulator
- Primary Control
- Pump
- Radiant Panel
- Radiators*
- Relief Valve
- Resistance Element
- Safety Controls
- Sidearm
- Space Heater
- Electrode
- Thermostat
- Transformer
- Warm Air Ducts*
- Warm Air Filter
- Wood Stoves
- Zone Valves

* NOTE: The repair of steam and space heating pipes, radiators, and warm air ducts is an allowable expense when the repair is necessary to ensure the operation of the primary heating system.

- f. All air leaks into the combustion chamber, especially joints between sections of cast iron boilers or around fire doors and blast tubes, must be sealed.
- g. All invoices associated with heating system repair must be retained in client files for DHCD monitoring and audits.

5. Quality Control When a Heating System Has Been Repaired

a. Repairs under \$400

Ten percent (10%) of all homes which receive heating system repairs under \$400 must receive a quality control inspection.

b. Repairs of \$400 and more

All homes (100%) that receive cumulative heating system repairs of \$400 or more must receive a quality control inspection.

NOTE: Combustion efficiency and CO tests must be performed on all heating systems receiving a quality control inspection.

- c. See Attachment D for “Oil-Fired Heating System Quality Control Procedures.”
- d. See Attachment E for “Gas-Fired Heating System Quality Control Procedures.”

C. To Replace a Leaking, Irreparable or Unsafe Fuel Tank

1. Definition

- a. The replacement of an existing fuel oil or kerosene tank used for the storage of the primary heat source fuel, that is leaking, irreparable or unsafe.

2. Policy and Cost Limitation

- a. Subgrantees may replace a primary heat source fuel oil or kerosene tank if the existing tank is leaking and irreparable or unsafe.
- b. The cost of the tank replacement is limited to \$1,200 inclusive of any costs associated with the oil line, but not inclusive of any other repairs made to the primary heating system. Additional repairs such as fill and vent pipes or cement pads are allowable. Other tank related repairs are subject to prior DHCD approval. Fuel tank replacement and associated repair costs are included in the maximum allowable annual cost limitations for a client.

3. Rules and Regulations Applicable to Oil Tank Replacement Policy

- a. Prior to undertaking an oil tank replacement the Subgrantee must obtain a Work Permit signed by the Property Owner.
- b. Written verification that the tank needs to be replaced must be included in the client file.
- c. Subgrantees must obtain and include in the client file verification that required permit(s) have been obtained.
- d. Fuel tanks in mobile home parks are the responsibility of the mobile home park owner not the occupant. DHCD has provided guidance regarding this matter in DHCD-IM-2001-012 and DHCD-IM-'00-043. All tank replacements in mobile home parks must be conducted consistent with the requirements of these memoranda and Section II.8.h of the Attorney General's Guide to Manufactured Housing Community Law.

4. Specific Standards for Oil Tank Replacements

- a. The tank and the installation of the tank must be in compliance with the regulations outlined in 527 CMR 4.0, the Massachusetts Oil Burner Code.

5. Quality Control of a Tank Replacement

- a. All tank replacements must receive a fully documented quality control visit including combustion efficiency and carbon monoxide testing of the primary heating system.

D. To Replace an Inefficient, Inoperable, or Unsafe Burner in a Primary Heating System

1. Definition

- a. The replacement of an oil or gas burner that is installed in an existing primary heating system.

2. Policy and Cost Limitation

- a. Policy: A primary heating system burner replacement is an allowable activity in a situation where a burner is unsafe or inoperable or the burner has a combustion efficiency of 72% or less after a CTE has been performed.
- b. The cost of replacing a burner is limited to \$400 (not inclusive of required repairs or retrofits).

3. Rules and Regulations Applicable to Burner Replacement Policy

- a. Prior to undertaking any non-emergency burner replacement on an owner occupied home, the subgrantee is required to obtain a Work Permit signed by the property owner.
- b. Prior to undertaking a non-emergency burner replacement on behalf of an eligible tenant's heating system, the subgrantee is required to obtain both a Work Permit and Standardized Property Owner/Tenant Agreement.
- c. Prior to undertaking any emergency burner replacement on an owner occupied home, the subgrantee is required to obtain a Work Permit signed by the property owner. If this does not or cannot happen due to the emergency situation, the subgrantee may rely on the DHCD policy on Retroactive Service.
- d. Prior to undertaking an emergency burner replacement on behalf of an eligible renter's heating system, the subgrantee is required to obtain a Work Permit signed by the property owner. DHCD recognizes that in emergency situations, it is not always easy or possible to secure the signature of a property owner when the emergency is in a tenant's dwelling unit. When these situations arise, the subgrantee must encourage the tenant to arrange for the burner replacement themselves, the tenant thus accepting the responsibility for allowing a contractor into the property owner's home. The subgrantee may rely on the DHCD policy on Retroactive Service in such instances.

The subgrantee must make every effort to obtain the signature of the property owner on the Standardized Property Owner/Tenant Agreement before the burner replacement occurs or, if not possible at that time, after the work is completed.

- e. Prior to replacing an oil or gas burner, the subgrantee must obtain, and retain in the client, file written documentation from a licensed heating technician attesting to the burner's unsafe, inoperable, or inefficient condition.
- f. The service technician's combustion efficiency test results, and verification that all required permits were applied for, must be included in the client file prior to invoices being paid.

- g. A CTE is mandatory before a subgrantee can proceed with the replacement of an oil or gas burner unless the unit is inoperable, or the performance of a CTE would only marginally affect the efficiency of the existing unit.

Before replacing an oil burner in an older (15 years or older) forced warm air furnace, the subgrantee technical staff and the installing contractor must thoroughly evaluate the existing conditions in the furnace. It may be very likely that the furnace combustion chamber and heat exchanger will be unable to withstand the higher combustion temperatures of a new flame retention burner.

4. Specific Standards for Burner Replacements in Relation to Fuel Source

a. Oil Heat Burner Replacement Standards:

- The burner and the installation of the burner must be in compliance with the regulations outlined in 527 CMR 4.0, the Massachusetts Oil Burner Code.

b. Oil Burner Replacement Performance Standards:

- An oil burner replaced in coal converted boiler or furnace must attain a minimum combustion efficiency of **75%** with a **0 to a trace** of smoke or the servicing technician must provide the subgrantee with written justification detailing the reasons why this minimum level of efficiency could not be attained.
- An oil burner replaced in design boiler or furnace must attain a minimum combustion efficiency of **79%** with a **0 to a trace** of smoke or the servicing technician must provide the subgrantee with written justification detailing the reasons why this minimum level of efficiency could not be attained.

NOTE: DHCD Technical Field staff are the only individuals authorized to grant a waiver of the above standards, and contractors must not be paid until such a waiver is granted.

It is possible that additional measures should be considered when replacing an oil burner such as replacing the primary control by a Cad Cell and/or relining or replacing the combustion chamber to withstand higher temperatures and to ensure efficient combustion. Consult the manufacturer's recommendations.

The material standards for replacement oil burners must comply with the following:

- UL 296
- NFPA 31-2006

c. Gas Heat Burner Replacement Standards

The material standards for replacement gas burners must comply with the following:

- ANSI Z223.1 2002

d. Gas Burner Replacement Performance Standard:

A gas burner replaced in an oil or coal converted boiler or furnace must attain a minimum combustion efficiency of **75%** or the servicing technician must provide the subgrantee with written justification detailing the reasons why this minimum level of efficiency could not be attained.

e. Solid Fuel Burner Replacement Standards:

Solid fuel stoves must be installed consistent with the manufacturer's recommendations and Massachusetts Building Code requirements.

5. Quality Control on a Burner Replacement

- a. All burner replacements must receive a quality control inspection, including a combustion efficiency test and a carbon monoxide test, prior to payment being issued to the contractor.
- b. See Attachment D for "Oil-Fired Heating System Quality Control Procedure".
- c. See Attachment E for "Gas-Fired Heating System Quality Control Procedure".

E. To Replace An Unsafe, Inoperable, Or Gravity Warm Air Primary Heating System

1. Definition

- a. The replacement of a dwelling unit's primary space heating system.
- b. The replacement unit may be a furnace, boiler, electric resistance heaters, heat pump, space heater or solid fuel stove.

2. Policy and Cost Limitation

- a. Policy: The replacement of primary heating systems is an allowable activity in a situation where an unsafe, inoperable, or gravity warm air system is present and when the conditions listed below are also met.
- b. Cost Limitation: A maximum of \$2,500 (\$2,750 if a hot water boiler or \$3,000 if a steam boiler is replaced) may be spent on the replacement of a primary heating system if no other HEARTWAP activity has occurred. If another HEARTWAP or WAP heating system activity has occurred, the cost of that activity must be deducted from the \$2,500 (\$2,750 if a hot water boiler or \$3,000 if a steam boiler is replaced) maximum expenditure to result in the maximum amount of funds that could contribute towards the heating system replacement. Further, in those situations when a LIHEAP eligible tenant lives in an ineligible property owner's home, no more than \$875 may be contributed towards the replacement of the system using HEARTWAP funds. WAP funds cannot be used to supplement HEARTWAP funds beyond cost maximums for any category.

If the eligible household lives in a city or town that is served by a Municipal Utility, the subgrantee may request up to \$3,625 in HEARTWAP Heating System Allocation funds towards the replacement of a warm air furnace, \$4,000 for the replacement of a hot water boiler or \$4,375 toward the replacement of a steam boiler. These additional funds must be pre-approved by DHCD and must be requested when the subgrantee requests approval for the heating system replacement.

Subgrantees who experience a significant number of client payment hardships due to the lack of Investor Owned Utility (IOU) heating system funding, may request a waiver from DHCD/DCS for additional primary space heating system replacement funds. The waiver would authorize a Subgrantee to expend up to an additional \$500 for a primary space heating system replacement for an eligible homeowner. However, the Subgrantee must insure that the average annual cost for each primary space heating system replacement type (warm air furnace, hot water boiler and steam boiler) does not exceed the individual job maximum expenditure (\$2,500, \$2,750 and \$3,000) authorized by DHCD/DCS.

3. Rules and Regulations Applicable to Primary Heating System Replacement Policy:

- a. Heating system replacements must be awarded to the lowest priced or highest rated bidder when the following are considered:

- Price
- AFUE (Annual Fuel Utilization Efficiency)
- Product Warranty Period
- Product Quality
- Installer's Warranty Period
- Quality of Installer's Work

DHCD policy regarding replacement furnaces and boilers is that subgrantees should procure the most efficient equipment with funding available while maintaining an open, competitive and equitable procurement process.

Any and all information given to one contractor must be shared with all contractors.

- b. In those instances when the primary heating system to be replaced is in an owner occupied dwelling, the subgrantee is required to obtain a Work Permit prior to undertaking the primary heating system replacement.
- c. In those instances when the primary heating system to be replaced heats a LIHEAP eligible tenant's unit, and the owner of the home is also LIHEAP eligible, the subgrantee is required to obtain both a Work Permit and Standardized Property Owner/Tenant Agreement prior to undertaking the primary heating system replacement.
- d. In those instances where the heating system to be replaced heats a LIHEAP eligible tenant's unit, but the owner is not LIHEAP eligible, the subgrantee bears the responsibility to negotiate with the owner of the home. DHCD will not allow more than \$875 to be contributed towards the new heating system. If negotiations with the property owner produce an agreement within this cost limitation condition, then the subgrantee is required to obtain both a Work Permit and Standardized Property Owner/Tenant Agreement prior to

undertaking the primary heating system replacement. The owner must further agree that no payments will be made to the contractor until an acceptable Q.C. visit has been completed by the subgrantee.

- e. **The subgrantee must have in their possession a written statement from a licensed technician that the primary heating system is unsafe or inoperable. Written confirmation of this fact is needed by another licensed contractor or a technically competent and DHCD trained subgrantee staff person.**
- f. The estimated cost of the furnace, boiler, wood, pellet, or coal stove must be competitive for the Region. DHCD requires that prior to the replacement of the heating system a subgrantee obtain three (3) written estimates for the job. If it is impossible to secure three (3) written estimates, at least three (3) telephone quotes must be documented in the client's file. The contractor that is awarded the system replacement must provide the subgrantee with a written bid.
- g. If all things in the bid responses are equivalent (AFUE, warranty, price, quality of service, product), the subgrantee may give preference to the dealer of record in the bid procurement process for a system replacement.

If all items in the bids are equivalent, and the only difference in the bids is that the dealer of record's bid is no greater than **\$100** above the next lowest bidder, then the subgrantee may approach (but does not have to approach) the client and offer them the opportunity to contribute to the as much as \$100 to the cost of the system replacement. The client would accept this offer if it were important for them to have the dealer of record complete the work. If the client chooses not to contribute the sum of the full difference between the bids so that the dealer of record can be employed, then the subgrantee must hire the lower bidder.

The subgrantee is strictly prohibited from asking any contractor to match or otherwise lower their bid for the expressed purpose of being awarded the job as the low bidder.

- h. The furnace or boiler that is to be installed must meet the following minimum AFUE ratings for the type of system to be installed unless existing conditions, that cannot be remedied, prohibit the installation.

Type	Oil	Gas
FHW	85%	85%
FWA	83%	90%
Steam	82%	82%

The AFUE can be determined by requesting a copy of the manufacturer's fact sheet, by subscribing to the Consumers' Directory of Certified Furnace and Boiler Efficiency Ratings, published by the Gas Appliance Manufacturers Association (GAMA), or by subscribing to the I=B=R Boiler Ratings Manual. This information is also available online at:

<http://www.gamanet.org/>

- i. The Hartford Loop piping configuration must be installed on all new steam boiler installations. All boiler manufacturers and the ASME consider the Hartford Loop to be good piping practice.
- j. The subgrantee must receive prior permission from a designated DHCD representative before hiring a contractor to replace a primary heating system including space heaters and solid fuel stoves.
- k. Upon completion of a heating system replacement and prior to payment being made, the installing technician must provide the results of a combustion efficiency test (when appropriate) and verification that the required permits were applied for.
- l. Each primary heating system replacement must receive an acceptable quality control inspection by a technically competent and DHCD trained subgrantee staff person prior to payment being made. This Q.C. visit must include a carbon monoxide test.
- m. All invoices associated with the primary heating system replacement must be retained in the client's file for DHCD monitoring and audit review.
- n. A client who received a new primary heating system/ burner replacement from any program in the past and who now needs a primary heating system replacement, may receive the heating system replacement, as long as one of the following three (3) criteria are met concerning the "old" burner:
 - i. The "old" burner may be installed in the new system and, if so, the cost of the burner must be deducted from the new system; or
 - ii. The "old" burner may be retained by the subgrantee as part of its inventory to be used in an eligible client's home needing only a burner replacement sometime in the future; or
 - iii. In those instances where the client purchased the burner themselves in the past four (4) years, one of the following must occur:
 - a. The contractor installing the new system can purchase the burner from the client at a mutually satisfactory price.
 - b. The client can retain the burner.
 - c. The client can donate the burner to the subgrantee.

4. Specific Standards On Primary Heating System Replacement In Relation To Fuel Source:

- a. Oil Heat Primary Heating System Replacement Standards:
 - i. Material Standards:
 - Installation of oil burning equipment, NFPA 31-2006.

- Boiler and Pressure vessel code (eleven sections) ASME 1998 or latest Testing and Ratings Hydronics Institute (HYDI).
- Minimum AFUE Rating of 83% for Forced Warm Air, 85% for Forced Hot Water, and 82% for Steam.

ii. Installation Standards:

Commonwealth of Massachusetts 527 CMR 4.00, Board of Fire Prevention Regulations on Oil Burning Equipment.

All systems must be installed on solid cement blocks.

iii. Oil Furnace or Boiler Replacement Performance Standards:

Oil-fired furnace or boiler replacements must attain a minimum post-installation combustion efficiency of 80% with a 0 to a trace of smoke or the servicing technician must provide the subgrantee with written justification detailing the reasons why this minimum level of efficiency could not be attained.

DHCD Technical staff members are the only individuals authorized to grant a waiver of the above standards, and contractors must not be paid until such a waiver is granted.

b. Natural Gas and Propane Heating Primary Heating System Replacement Standards

i. Material Standards:

- Gas fired, central furnaces, ANSI Z21.47-2003 and ANSI Z223.1-2002, NFPA 54-2002
- Boiler and Pressure vessel code (eleven sections) ASME 1998 or latest
- Testing and Ratings Hydronics Institute (HYDI).
- Minimum AFUE Rating of 90% Forced Warm Air, 85% Forced Hot Water, 82% Steam.

ii. Installation Standards:

- Commonwealth of Massachusetts Fuel Gas and Plumbing Codes.

All systems must be installed on solid cement blocks.

iii. Gas Furnace or Boiler Replacement Performance Standards:

- Gas-fired furnace or boiler replacements with an atmospheric burner must attain a minimum post-installation combustion efficiency of 75%. Gas-fired furnace or

boiler replacements with a gas power burner must attain a minimum post-installation combustion efficiency of 80%.

State Building Code Requirement:

Section 2010.3 Systems Heating Capacity:

The rated output capacity of the heating system at design conditions shall not be greater than one hundred twenty-five percent (125%) of the design load calculated in accordance with this article.

c. Solid Fuel Heat Primary Heating System Replacement Standards:

- i. For wood or coal stoves, the material standards are as stated in NFPA 211-2006.

d. Specific Standards on Electric Heating System Replacements:

- i. Material Standards:
 - Installation of UL approved equipment
- ii. Installation Standards:
 - Commonwealth of Massachusetts Electrical Code

5. Quality Control on a Primary Heating System Replacement

- a. All primary heating system replacements must receive a quality control inspection by a technically competent and DHCD trained subgrantee staff person.
- b. See Attachment D for "Oil-Fired Heating System Quality Control Procedure".
- c. See Attachment E for "Gas-Fired Heating System Quality Control Procedure".

6. Additional Rules and Regulations Applicable to Primary Heating System Replacement Policy

- a. Prior to a subgrantee requesting DHCD approval to replace any oil or gas-fired steam boiler the subgrantee must obtain in writing, a full radiation schedule, delineating the square feet of steam required, in order to confirm that the replacement boiler is properly sized.
- b. Prior to a subgrantee requesting DHCD approval to replace an oil or gas-fired warm air furnace the subgrantee must procure the cost of a forced warm air furnace, the installation of downsized replacement ducts, where applicable, and of installing a cold air return when possible or required. To the maximum extent possible, HEARTWAP subgrantees and installing contractors must minimize the use of flexible ductwork. When it is used, the flexduct runs must be as short and straight as possible to ensure minimal restrictions to the airflow.
- c. Prior to a subgrantee requesting approval to replace an oil or gas fired heating system, the subgrantee must obtain, in writing, a complete and accurate building heat loss calculation.

The heat loss survey must be based on industry -accepted standards. DHCD strongly encourages agencies to complete heat loss surveys on all homes prior to requesting proposals to assist in writing specifications for the system replacement.

NOTE: The heat loss calculation is only a HEARTWAP requirement when a subgrantee requests approval to install a furnace or hot water boiler with a rated output capacity of greater than 96,000 BTUs.

F. To Complete Allowable Primary Heating System Retrofit Measures

1. Definition

The installation where one did not previously exist of any of the following items to an existing primary heating system:

- Clock Thermostat
- Hydronic Boiler Control/Modulating Aquastat
- Combustion Chamber
- Thermostatic Radiator Valves
- Air Ducts (Warm and Cold)
- Steam and Hot Water Radiation and Piping
- Cad Cell Relay
- Nozzle Line Pre Heater
- Spillage Safety Switch
- Automatic Water Feed for Steam Systems
- Power Vent
- Chimney Liner

2. Policy and Cost Limitation

- a. **Policy:** The HEARTWAP policy on primary heating system retrofit measures is that they are allowable activities to be conducted either in conjunction with, or apart from, the following activities on oil and/or gas-fired primary heating system activities: CTEs, repairs, burner replacements, and heating system replacements.
- b. **Cost Limitation:** The cost of all retrofit measures must be charged against the client's maximum assistance for the type of heating system. The costs for the individual measures cannot exceed \$500 without prior DHCD approval.

3. Rules and Regulations Applicable to Primary Heating System Retrofit Measures

- a. Retrofit measures completed independently of another heating system activity are not an activity which demand a Work Permit unless the retrofit measure will be completed by a technician other than the client's service dealer of record, in which case a Work Permit is required.
- b. Retrofit measures completed in conjunction with other heating system activities shall need Work Permits and Property Owner/Tenant Agreements in as much as that heating system activity requires these documents.

4. Specific Retrofit Measures and Material Standards For Oil and Gas-Fired Systems:

- a. Clock Thermostat: A clock thermostat is a device that is designed to reduce energy consumption by regulating the demand on the heating system in which it is installed. It uses a temperature control device for interior spaces incorporating more than one temperature control level and a clock or other automatic mechanism for switching from one control to another.

Material Standard: Conformance to NEMA DC 3-1989 (R1996) and Listed by Underwriters Laboratories.

- b. Hydronic Boiler Control: The automatic boiler temperature reset control allows for using a boiler water temperature which more closely matches the amount of heat needed to maintain comfortable room temperature for a given outdoor air temperature. This control automatically raises the circulating boiler water temperature set point as outdoor temperature drops, and reduces the water temperature setting in milder weather. Energy is saved due to reduced cycling of the burner, and less heat is lost out the stack during the off period.

Material Standard: UL Approved

- c. Thermostatic Radiator Valves: Thermostatic radiator valves provide individual control of radiators, convectors, or baseboards in two pipe steam and hot water heating systems. They effectively allow for the balancing of uneven heat distribution systems.

Material Standard: Commercial Availability

- d. Air Ducts (Warm and Cold) Not Installed in Conjunction with a Replacement Heating System: Air ducts are designed to deliver warm air to the desired areas or return room temperature air to the furnace. Sufficient cold air return should be present, equal to 100% of the warm air distribution.

- e. Steam and Hot Water Radiation and Piping (Not Installed in Conjunction with a Replacement Heating System) is an allowable retrofit measure.

Material Standard: I=B=R approved

- f. Cad Cell Relay: A flame detector which results in a safer, more efficient cycling system.

Material Standard: UL Approved

- g. Spillage Safety Switch: A thermal circuit breaker that provides a means for appliance shut-down in the event of flue blockage or down drafts. When concentrated spillage of the products of combustion occurs from the draft hood, diverter or control, the safety spill switch circuit will open preventing burner operation.

Material Standard: UL Listed Components

- h. Nozzle Line Preheater: A heating element that is installed on oil heating systems to warm the oil before it reaches the nozzle. Heating of the fuel and nozzle assembly improves atomization through reduced viscosity and reduces smoke produced during initial start-up. Preheaters are especially effective when utilized in conjunction with an outside oil tank.

Material Standard: UL Listed Components

- i. Automatic Water Feed: A device installed on a steam system which works in conjunction with the low water cut-out (LWCO) to prevent the steam boiler from running low on water. When the LWCO is activated due to a low water level in the boiler, an electrical switch is activated to open a valve allowing water to enter the boiler until the LWCO is deactivated. The automatic water feed should only be installed in the homes of those clients who due to physical disabilities are unable to properly maintain the water level in the steam boiler.

Material Standard: Commercial Availability; UL Listed Components

- j. Power Vent: A device to ventilate the products of combustion from a furnace or boiler through the sidewall of a home rather than using a standard chimney.

Material Standard: Commercial Availability; UL Listed Components

5. Quality Control on Retrofit Measures:

- a. All Retrofit measures \$400 or more must receive a Quality Control visit, including a combustion efficiency, CO test, and when applicable, a gas leak test.

G. To Replace an Unsafe or Inoperable Space Heater Primary Heating System

1. Definition

A vented primary heating system that is situated in the living space and does not have a distribution system. A solid fuel stove or any electrically fired appliance is not to be considered a space heater.

2. Policy and Cost Limitation

- a. Policy: The purchase of a new or replacement space heater is an allowable HEARTWAP expense for LIHEAP eligible households. The maximum expenditure limit is \$2,500 for an owner, or a tenant whose landlord is LIHEAP eligible.

- b. Cost Limitation:

Space Heater Cleaning:	\$100
Space Heater Repair:	\$600
Space Heater Replacement:	\$2,500

3. Specific Standards for Space Heater Heating System Activities:

a. Cleaning:

- Clean the pilot light
- Check the thermocouple
- Calibrate the thermostat
- Check the high limit switch
- Check the piping
- Check the proper draft
- Check the blower

b. Repairs:

- Space heaters are eligible for repairs as needed.

c. Replacement:

- Space heaters must be American Gas Association/
Commonwealth of Massachusetts approved.

6. Quality Control on Space Heater Heating System Activities:

a. Cleaning:

Ten percent (10%) of all space heater primary heating system CTEs must receive a quality control inspection.

b. Repairs:

All space heater repairs equal to or greater than \$400 must receive a quality control inspection.

c. Replacements:

All space heater replacements must receive a quality control inspection prior to contractor payments.

d. All Quality Control inspections of Space Heaters must include a CO and gas leak test.

IV. ASBESTOS ABATEMENT PROCEDURES AND REGULATIONS

A. Licensure Requirements:

All contractors involved in the removal, containment, or encapsulation of more than three (3) linear feet of asbestos surface on pipes or ducts or more than three (3) square feet of asbestos surface on structures other than pipes or ducts must possess an asbestos contractor license issued by the Massachusetts Department of Labor and Workforce Development, Division of Occupational Safety (DOS).

HEARTWAP subgrantees must have on file a copy of the asbestos abatement contractor's license, an original certificate of insurance, a signed Contract for Services and a signed Debarment Statement prior to payment being made for any asbestos abatement work performed. Subgrantees are not required to maintain copies of any other DOS mandated certifications.

B. Final Air Monitoring Results:

The collection of air monitoring samples must be performed by a DOS certified Asbestos Abatement Project Monitor. In no case shall the contractor or an employee of the contractor collect clearance air monitoring samples.

The analyses of all air monitoring samples shall be performed by a DOS certified Analytical Services Provider. The final air monitoring results must be reported to the HEARTWAP subgrantee on the letterhead of a DOS certified Analytical Services Provider prior to the asbestos abatement contractor receiving payment for work performed. The final air monitoring sample must indicate an Asbestos Containing Material (ACM) concentration of less than 0.01 fiber/cc.

C. Asbestos Abatement Procedures:

HEARTWAP subgrantees are responsible for the abatement of asbestos material only when there is a potential asbestos hazard to the building's residents due to the proposed weatherization or heating system work.

1. When Asbestos Will Not Be Disturbed and There Is No Abatement:

- a. If the asbestos containing material, most commonly used as boiler, furnace or pipe insulation is in good condition and will not be disturbed by the weatherization or heating system repair or retrofit process, then the asbestos material should remain undisturbed.
- b. If the asbestos containing material is thought to be a hazard to the building's residents but will not be disturbed by the weatherization or heating system repair, or retrofit process, then the building's owner must be notified of the potential hazard.

2. When Asbestos Will Be Disturbed and Abatement Will Be Necessary:

- a. If the asbestos containing material will be disturbed by the weatherization, heating system repair, or retrofit process, then the subgrantee must ensure that the potential hazard is addressed prior to implementing the related weatherization or retrofit measure. The subgrantee and the homeowner must, in conjunction with the local Board of Health or an asbestos abatement contractor, reach an informed decision regarding the method of abatement to be utilized. The homeowner must sign a Property Owner Asbestos Abatement Work Permit (see Attachment F) prior to work being performed. In the event the homeowner does not want asbestos abatement, then the subgrantee may not perform the related weatherization measure.
- b. The potential asbestos hazard must be addressed in accordance with the applicable Department of Public Health Asbestos Abatement Regulation: 105 CMR 410.353: **Asbestos Material Used as Insulation or Covering on Pipes, Boilers or Furnaces.**

- i. Enclosing the asbestos material in accordance with 105 CMR 410.353 (C);

Encapsulation of asbestos material may only be performed by an experienced and knowledgeable asbestos abatement contractor; the encapsulation must be performed according to the procedure for encapsulation outlined in "Asbestos Encapsulation in Conjunction with WAP and HEARTWAP Work."

- ii. Repairing the asbestos material in accordance with 105 CMR 410.353;

Repairing of asbestos material may only be performed by an experienced and knowledgeable asbestos abatement contractor; the repair must be performed according to the procedure for repair outlined in "Asbestos Repair in Conjunction with WAP and HEARTWAP."

- iii. Removing the asbestos material in accordance with 105 CMR 410.353 (D);

Removal of asbestos material may only be performed by an experienced and knowledgeable asbestos abatement contractor; the removal must be performed according to the procedure for removal outlined in "Asbestos Removal in Conjunction with a HEARTWAP Heating System Replacement."

(It is important to note that all federal and state agencies involved in asbestos abatement work recommend the removal of asbestos material only when the material cannot be enclosed or repaired.)

3. When Payment is Necessary for Asbestos Abatement:

- a. Expenditures for heating system related asbestos work, in conjunction with HEARTWAP, is an allowable expense in a subgrantee's Heating System Allocation budget.
- b. Allowable expenditures for asbestos abatement work, in conjunction with full-scale WAP is reimbursable from the Repair Material and Repair Labor cost categories consistent with the specific WAP expenditure maximums.

D. Asbestos Encapsulation in Conjunction with WAP and HEARTWAP Work:

1. Subgrantee Responsibilities:

- a. The material in question must be identified as containing asbestos. If a subgrantee is in doubt as to the composition of the material they should consult with the local Board of Health to reach a determination.
- b. The subgrantee must obtain a signed **Homeowner/Property Owner Asbestos Abatement Work Permit** (Attachment F) prior to the work beginning.
- c. A competitive procurement process that includes only experienced and knowledgeable asbestos abatement contractors must be implemented. No less than three (3) written or verbal bids must be procured on a job-by-job basis with the award being made to the lowest acceptable bidder. If a verbal bid is accepted, the

subgrantee bears the responsibility of recording the bid for the file. DHCD will, if requested, waive this requirement for a subgrantee if a particular region of the state lacks a sufficient number of experienced and knowledgeable asbestos abatement contractors.

Subcontracting of the asbestos abatement work by a heating, insulation, weatherization, or any other contractor is prohibited. A subgrantee may only contract directly with a licensed asbestos abatement contractor.

- d. Once the contractor is selected, the subgrantee will ensure execution of an appropriate contract with the contractor. In addition to standard contract provisions, the contract must include 1) a provision covering the contractor's insurance responsibilities (see Part B Section 2 Paragraph a), and 2) "hold harmless" language as follows:

"Contractor agrees to reimburse, indemnify, and hold harmless (the Subgrantee) for any loss, damage, liability, or cause of action arising from the Contractor's activities under this Agreement or Contractor's failure to perform in conformance with the terms of this Agreement or the requirements of any applicable law."

The contract must also include language that the asbestos abatement contractor agrees to comply with the regulations released by the Environmental Protection Agency as stated in 40 CFR Part 763, released, July 12, 1985.

- e. Upon the completion of the asbestos material encapsulation, and only if the asbestos material is disturbed during encapsulation (which it rarely is), the subgrantee must receive a final air monitoring result that states that all areas did not exceed air sampling levels of 0.01 fiber/cc.

2. Contractor Responsibilities:

- a. The contractor must give to the subgrantee, prior to the commencement of work, an original Certificate of Insurance which indicates that the following insurance coverage is in effect at the time the asbestos abatement work is performed.

Asbestos Abatement contractors shall provide evidence of specific coverage under its Commercial General Liability policy. The policy shall:

1. be written on a "true occurrence" basis without any "sunset" clause;
2. have pollution exclusion amended to add back coverage for all pollution claims;
3. include separate products and completed operations coverage which shall be maintained for two (2) years after Substantial Completion of the project.
4. provide the following limits of insurance:

Bodily Injury and Property Damage	\$1,000,000 each occurrence \$1,000,000 general aggregate
Products and Completed Operations	\$1,000,000 aggregate
Personal and Advertising Injury	\$1,000,000
Fire Damage	\$ 50,000

Medical Expense \$ 5,000

Worker's Compensation

Provide the following coverage in accordance with M.G.L. c.149 34A and c. 152 as amended:

Worker's Compensation Provide Statutory Minimum

Coverage A

Worker's Compensation \$500,000 each accident

Coverage B \$500,000 disease per employee

\$500,000 disease policy

- b. The contractor must provide verification that the Commonwealth of Mass. Department of Environmental Protection (Mass. DEP) has been notified consistent with requirements outlined in 453 CMR.

E. Asbestos Repair in Conjunction with HEARTWAP Work:

When it is necessary for a subgrantee to repair asbestos material prior to performing HEARTWAP work, the following procedure must be adhered to:

1. Subgrantee Responsibilities

- a. The subgrantee's responsibilities, when asbestos containing material is being repaired, are identical to those listed under asbestos encapsulation. However, the subgrantee must also receive the following two (2) items prior to rendering payment:
 - i. A final air monitoring report documenting that the tested area(s) did not exceed 0.01 fiber/cc.
 - ii. A dated receipt from a designated sanitary landfill. The landfill site must be approved for use by either the local Board of Health or the Department of Environmental Protection (DEP). The client's address must appear on the contractor's disposal manifest. An alternative to the disposal manifest is documentation of an approved interim storage facility, to store the asbestos until it is legally disposed of at an approved landfill.

2. Contractor Responsibilities

- a. The contractor's responsibilities, when asbestos containing material is to be removed, are the same as when the asbestos is being encapsulated. However, in addition to all the provisions previously outlined, the contractor must provide;
 - i. A final air monitoring report documenting that the tested area did not exceed 0.01 fiber/cc.
 - ii. A dated receipt from a designated sanitary landfill. The landfill site must be approved by either the local Board of Health or the DEP. The client's address must appear on the disposal manifest. An alternative is documentation of an approved interim storage facility, to store the asbestos until it is legally disposed at an approved landfill.

F. Asbestos Removal in Conjunction with a HEARTWAP Heating System Replacement

When it is necessary for a subgrantee to remove an asbestos covered boiler, furnace, duct, or heating pipe prior to the replacement of a primary heating system the following procedure must be adhered to:

1. Subgrantee Responsibilities

- a. The Subgrantee's responsibilities when asbestos is being removed is the same as when asbestos is being repaired.
- b. The removal and disposal of asbestos material in conjunction with a HEARTWAP heating system replacement is an allowable expenditure only if DHCD's prior approval is granted. Approval to remove must be sought by a subgrantee at the same time that it seeks a heating system replacement authorization. Funding for allowable asbestos abatement work will be in addition to the maximum placed upon HEARTWAP heating system activities.

2. Contractor Responsibilities

- a. The contractor's responsibilities when asbestos is to be removed are the same as when asbestos is being repaired, except that if the Glove Bag removal technique is used, no air sample is required. If the Glove Bag removal technique is used, it must be clearly stated in the contractor's proposal and invoice.

G. Notification

The contractor must notify the following agencies in writing prior to the commencement of asbestos work.

1. Commonwealth of Massachusetts Department of Environmental Protection (DEP) must be notified by the asbestos abatement contractor, in writing, ten (10) days prior to any asbestos containing material being removed from a building.

DHCD has received the following verbal guidance from DEP regarding emergency asbestos removal projects. If an emergency asbestos removal project must be undertaken, the DEP must first be notified by telephone regarding the situation, and then the asbestos abatement contractor must immediately follow-up this action with written notification. DEP may grant immediate verbal approval to remove asbestos in an emergency.

2. U.S. EPA ten (10) days in advance when removing more than 160 square feet or 260 linear feet of asbestos material. This is equal to approximately the size of a large boiler or furnace.

H. Subgrantee Staff and Weatherization Contractor Exposure to Asbestos Dust:

1. U.S. Department of Labor/Occupational Safety and Health Administration

The following opinion was received from the U.S. Department of Labor/Occupational Safety and Health Administration (OSHA) regarding the possibility of WAP and HEARTWAP subgrantee staff, or their contractors' employees, being exposed to unhealthy levels of asbestos dust while performing their normal, day-to-day work activities.

OSHA indicated that those individuals would be subjected to little, if any, asbestos exposure while performing their routine job duties. Typical job duties were defined as combustion efficiency testing; heating system maintenance, repair, and retrofit; and floor, perimeter, pipe, and water heater insulation.

Further, subgrantee and contractor personnel, exclusive of asbestos abatement contractors, are not subject to OSHA's personal protective equipment regulations unless they will be exposed to excessive concentrations of asbestos fibers.

2. The Massachusetts "Right-To-Know Law" Chapter IIIF of the Massachusetts General Laws

Subgrantees should consult with the Massachusetts Department of Labor and Workforce Development, Division of Occupational Safety (DOS) concerning implementation of the Massachusetts "Right-To-Know" Law, Massachusetts General Laws IIIF, with respect to subgrantee employees.

The Massachusetts DOS has indicated to DHCD that they are mainly concerned about notification to individuals who might be present at the actual time of asbestos repair and removal.

I. Contacts

The following agencies are available to discuss the various aspects of asbestos abatement.

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA)

One Congress Street Boston, MA 02203

Telephone: (617) 918-1522 <http://www.epa.gov/>

MASSACHUSETTS DIVISION OF OCCUPATIONAL SAFETY

399 Washington Street, 5th Floor Boston, MA 02108

Telephone: (617) 727-7047 <http://www.mass.gov/dos/>

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION

1 Winter Street, Boston, MA 02108

Telephone: (617) 292-5500 <http://www.mass.gov/dep/dephome.htm>

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration (OSHA)

JFK Federal Building, Room E340

Boston, Massachusetts 02203

Telephone: (617) 565-9860 <http://www.osha.gov/>

V. **HEARTWAP Contractor Procurement Requirements**

The HEARTWAP Contractor Procurement requirements are outlined in a **DHCD WAP-IM-2008-016**.

Activity	Maximum Cost	Q.C Required	Work Permit Required	Tenant/LL Agreement
. Clean/tune/evaluate				
Owner Occupied	\$100 or \$125 for Oil Heat	10%	Non Dealer of Record Only	No
Tenant Occupied	\$100 or \$125 for Oil Heat	10%	Non Dealer of Record Only	No
Chimney Cleaning	\$ 150	10%	Yes	No
2. Heating System Repairs				
Non emergency	<\$400	10%	Yes	No
Non emergency	\$400-\$600	100%	Yes	Yes
Emergency	<\$300	10%	Yes+	No
Emergency	\$400-\$600	100%	Yes+	No, but try
Tank Replacement	\$1,200	100%	Yes	Yes
3. Burner Replacement				
Non emergency	\$400	100%	Yes	Yes
Emergency	\$400	100%	Yes	Yes, if possible
4. System Replacement				
Owner Occupied	\$ 2,500 Warm Air \$3,625 Warm Air* \$2,750 Hot Water \$4,000 Hot Water* \$3,000 Steam \$4,375 Steam*	100%	Yes	No
Tenant/ Owner Eligible	\$ 2,500 Warm Air \$3,625 Warm Air* \$2,750 Hot Water \$4,000 Hot Water* \$3,000 Steam \$4,375 Steam*	100%	Yes	Yes
Tenant Eligible/Owner not	\$ 875	100%	Yes	Yes
5. Retrofit Measures				
	\$ 500 (Waiver possible)	100%	Yes	Yes

* For clients who live in an area serviced by a Municipally-Owned utility.

Activity	Maximum Cost	Q.C Required	Work Permit Required	Tenant/LL Agreement
6. Space Heaters				
Existing unit				
Cleaning	\$100	10%	Non Dealer of Record Only	No
Non emergency repair	\$600	10%	Yes	No
Emergency repair	\$600	10%	Yes+	No
Replacements				
Owner occupied and eligible	\$2,500	100%	Yes	No
Tenant/Owner eligible	\$2,500	100%	Yes	Yes
Tenant eligible/Owner not;	\$875	100%	Yes	Yes
Gas on gas stoves	\$300	100%	Yes	Yes
7. Asbestos Abatement				
Owner occupied	\$1,200	100%	Yes	No
Tenant/owner eligible	\$1,200	100%	Yes	Yes
Tenant Eligible Owner not	50% of total Maximum \$600	100%	Yes	Yes

NOTE: + Please see definition of “Retroactive Service” in Part 1 of this Guidance.

NOTE: All HEARTWAP jobs with cumulative annual expenditures of \$875 or greater require Proof of Ownership.

WORK PERMIT

I, _____

(property owner's full name)

certify that **I am the owner/authorized agent** for the property located at

(number, street name, apt #) _

(number, street name, apt #) _

(city/town)

(city /town)

I further certify that I have **given my permission** to _____
(subgrantee name)

(subgrantee name)

to allow work on the property listed above in accordance with the following provisions:

1) _____

2) _____

4) _____

5) In the event the primary heating system is replaced by the Subgrantee and that the property owner decides to sell the aforementioned premises, within one (1) year from the date of signature on this work permit, the property owner agrees to reimburse the Subgrantee an amount equal to the total cost of the heating system materials installed and labor performed in the premises, as documented by the subgrantee, as of the date of sale. Said amount shall be paid to the agency immediately upon sale.

6) And such other particulars as may be attached to this agreement.

Signature: _____ Date: _____
(owner/authorized agent)

(owner/authorized agent)

HEATING SYSTEM EFFICIENCY REPORT

CLIENT NAME: _____ Job # _____

System type: Oil ____ Gas ____ Design ____ Converted ____ Gravity ____ FHW ____ FWA ____ Steam ____

Initial Efficiency Test Results

Gross Stack Temp. _____
Net Stack Temp. _____
Smoke _____
CO2/O2 _____
Carbon Monoxide _____
Overfire Draft _____
Breech Draft _____
Efficiency _____ %
Comments _____

Signature _____
Date _____

Service Technician's Test Results

Gross Stack Temp. _____
Net Stack Temp. _____
Smoke _____
CO2/O2 _____
Carbon Monoxide _____
Overfire Draft _____
Breech Draft _____
Efficiency _____ %
Nozzle Size _____
Comments: _____

Signature _____
Date _____

Final Efficiency Test Results

Gross Stack Temp. _____
Net Stack Temp. _____
Smoke _____
CO2/O2 _____
Carbon Monoxide _____
Overfire Draft _____
Breech Draft _____
Efficiency _____ %
Comments: _____

Signature _____
Date _____

OIL FIRED HEATING SYSTEM QUALITY CONTROL PROCEDURES

1. Take a combustion efficiency and carbon monoxide test.
2. Check for unusual noises and vibrations.
3. Check the flame ignition. Flame ignition should be instantaneous. Delayed ignition is indicative of a combustion problem.
4. Check for flame impingement. Flame should fill the combustion chamber without hitting the sides or back of the chamber.
5. Check the flame cut-off time. The flame should cut off in less than three seconds after the burner shuts off.
6. Check for soot deposits in the flue, combustion chamber, and on the heat exchanger.
7. Check the chimney for problems and the accumulation of soot.
8. Check for oil leaks.
9. Check the draft regulator for any improper adjustments or defects.
10. Check the distribution system.
11. Check for the presence of a Hartford Loop (new Steam Systems only)

The acceptable parameters of a combustion efficiency test on oil fired equipment are as follows:

Net stack	300-500° F
Smoke	0-Trace
CO ₂	8-10%
O ₂	5-7%
Draft	.02-.04

The maximum allowable concentration of carbon monoxide (CO) in the flue gas is 100 parts per million. The goal is no CO in the flue gas.

GAS FIRED HEATING SYSTEM QUALITY CONTROL PROCEDURES

1. Check the start-up sequence of the appliance.
2. Check the color of the flame. The flame should be blue. A small amount of orange indicates impurities in the gas and is acceptable. A yellow or white flame indicates insufficient combustion air and the likelihood of carbon monoxide production.
3. Check the flame for stability. The flame should be stationary on the burners, not “dancing”.
4. Check for unusual noises and vibrations.
5. For gas conversion units, check for a defective or improperly adjusted draft regulator.
6. Take a combustion efficiency, carbon monoxide, and draft test if possible.
7. Check the distribution system.

The acceptable parameters of a combustion efficiency test on gas fired equipment are as follows:

Net stack	300-500 ⁰ F
Smoke	0
CO ₂	7-9%
O ₂	4-10%
Draft	.02-.04

The maximum allowable concentration of carbon monoxide (CO) in the flue gas is 100 parts per million. The goal is no CO in the flue gas.

Asbestos Abatement Work Permit

I, _____ certify that I am the
(Name)
owner of the property located at _____ in the
city/town of _____ and hereby
authorize _____ to subcontract the following
(Subgrantee)

asbestos abatement work at the aforementioned property:

Repair _____ Encapsulation _____ Removal _____
consistent with all applicable Federal, State, and local regulations concerning
handling, removal, and disposal of asbestos containing materials.

Signature _____ Date _____.

Heating System Replacement

Bid Summary Form

Client Name: _____ Job #: _____ Owner/Tenant _____

Type of System: Oil _____ Gas _____ Nat _____ LP _____ Wood/Coal _____ Warm Air _____ Hot Water _____ Steam _____

Evaluation of Existing System _____

Date of Request _____

Date Received: _____

Vendor: _____

Model Name and Number _____

Output _____

AFUE _____

Heat Loss _____

Steam Needed _____

Price _____

Utility Contribution _____

Utility _____

Price for DHCD Approval _____

Client Contribution _____

Date Received: _____

Vendor: _____

Model Name and Number _____

Output _____

AFUE _____

Heat Loss _____

Steam Needed _____

Price _____

Utility Contribution _____

Utility _____

Price for DHCD Approval _____

Client Contribution _____

Date Received: _____

Vendor: _____

Model Name and Number _____

Output _____

AFUE _____

Heat Loss _____

Steam Needed _____

Price _____

Utility Contribution _____

Utility _____

Price for DHCD Approval _____

Client Contribution _____

Asbestos Abatement

Vendor: _____

Price: _____

DHCD Approval By: _____

Date: _____

Vendor: _____

Price: _____

Bid Awarded to: _____

Vendor: _____

Price: _____

Asbestos Abatement _____

: